(2) Frictions as a remedy for certain diseases. 1809.

An
Inaugural Dissertation
On
Frictions as a Remedy for certain
diseases.
Submitted to the examination of
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The
Trustees & Medical Faculty
of the
University of Pennsylvania,
For the degree of
Doctor of Medicine by
Lazarus Horsey of
Maryland

Horsey 1809

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# Upon fractions as a remedy for certain diseases

Friction in a Mechanical point of view, may be considered as that resistance which arises from the rubbing hard bodies one against another; but in a Medical the rubbing of a part of the body, by which its action is increased, the latter as applied to the body for the cure of certain diseases is what I shall particularly confine myself to. — This remedy I believe has been used in every age & nation for the cure of certain diseases, but on account of its indiscriminate use (arising probably from a want of proper distinction being made between weak & great morbid action) it was not followed with that suc-

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cep which the nature of the remedy & its effects on the healthy constitution seemed to promise & of course fell into disrepute together with others, some of which are to be ranked among the more important articles of the Materia Medica. It may not be improper to mention that this was the case in the reign of Homoeology, when her empire was coextensive with the earth or in other words when she reigned universally. — Happily for the science of Medicine, the name of a disease is no longer considered the sine qua non to successful treatment. There are revolutions in Medicine as in empires & to the great honour & glory of America she has gained her independence. We may now hail! our happy country not only as the land of liberty, but of philosophy & just principles in Medicine. The weak medicines have

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have become strong, the most active, & the poisonous governed in their operation by the establishment of principles in medicine. — Every article in the Materia Medica is either a remedy or poison according to the state & state of the system in which it is exhibited. Friction which I design as the subject of this essay is now to be snatched from amidst the inerties & to be placed among the active & more important articles of the Materia Medica. —

## Instruments of Friction

The dry hand, the flesh-brush, flannel or linen, simple or impregnated with Myrrh as in China or other aromatic gums & liniments of a stimulating nature, or sweet oil. — These are to be used according circumstances & varied from the most agreeable titillation to the most exquisite

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air, as the nature of the case or state of the of the system may demand. Different effects may be produced according to the smoothness or asperity of the bodies employed or the acrimony & stimulating nature of the articles

## Effects of friction on the Bloodvessels

It expedites the circulation of the blood, by increasing the action of the heart & arteries, thereby contributing to the growth, nutrition & health of animals. promotes secretion & excretion, promotes absorption, heavies restoration &c. And when used in moderately produces all the bad effects that result from the excessive use of other stimuli.

## On the Nerves

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ness increases the sensibility of the nervous
system; hence Dr Physick directs the ends of
the fingers to be rubbed on a rough surface
previous to feeling the pulse, when you
wish to determine on the propriety of blood
letting in doubtful cases. — Sensations
the most pleasurable as well as most pain
ful are excited by this cause, by varying
the degree of action only. May not all
the good as well as evil in the world be at=
tributed in part to this or something which
acts similarly on the nervous system pro
ducing pleasurable or painful sensations
thereby prompting to deeds the most
benevolent or atrocious, according as the
one or the other of these sensations predom
inates. All the passions & emotions of the mind
seem to be founded on sensations & may they not
be excited alternately or in succession accord

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ing to the degree of action of this or some similar cause, producing a pleasable or painful sensation. —— It renders the senses more acute; who is it, that hath not witnessed it in the tender infant, after having awoke from profound sleep, unable to distinguish one object from another, till it had rubbed its little eyes & gave them that brilliancy & lustre which seems necessary to perfect vision. May it not aid the mind in bringing to its recollection, long lost or forgotten ideas; we see something like this in the man of study or in persons anxious to recollect some past event, rubbing their forehead; & this they do without being conscious of it. As the senses are the avenues to knowledge, whatever renders them more acute must contribute especially to the facility of acquiring knowledge as well as the durability of retaining it. The more

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The more exquisite the sensation, the quicker the perception & the more durable the impression made on the mind. May not the mind of man be considered as a most simple perceptions & the difference in minds or capacities of men, be owing to these perceptions being differently compounded, combined or associated, constituting faculties, ideas & thoughts?

## On the Muscles

These may be divided into voluntary & involuntary or mixt; it excites their action, gives tone & strength to them & when immoderately used converts the voluntary into involuntary, constituting spasm, convulsions &c

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## On the Bowels

It diminishes their action, inducing costiveness, by producing a new & counter action; hence its use in diarrhoea, pains in the bowels, colics &c.

## On the Skin

It produces, heat, itching, redness, pain excoriation &c. When gentle constitutes that exquisitely agreeable sensation called tickling, which every child has felt with rapturous transport.

## The parts to which it should be applied

It should be used generally & partially according to circumstances. The following

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experiments were instituted, to prove its stimulant nature when partially applied. The experiments were made on my self with the assistance of one of my fellow students, at 12 o'clock at night my pulse beating 64 strokes in a minute. Friction was first made with the dry hand, being previously warmed; this was applied to my right arm & continued for two minutes, when the pulse was examined which was as follows.

My pulse beating 64 strokes in a minute.

The number of beats was carefully examined in both arms.

Right arm

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Minutes | 2, | 3, | 5, | 6, | 8, | 10, | 15, | 20 |
| Pulse | 64, | 64, | 65 | 65 | 66, | 68, | 73, | 76 |

Left arm

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Minutes | 2, | 3, | 5, | 6, | 8, | 10, | 15, | 20 |
| Pulse | 64, | 64, | 64, | 64 | 65 | 65, | 66, | 68 |

when the friction was stopped

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The examination of my pulse was continued
tho. the friction was stopped, the result was
as follows

Right arm

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Minutes | 25, | 30, | 35, | 40, | 50, | 60, | 70, | 80, | 100 |
| pulse | 76 | 75, | 75, | 73, | 70, | 70, | 68, | 66, | 64 |

Left arm

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Minutes | 25 | 30, | 35, | 40, | 50, | 60, | 70, | 80, | 100 |
| pulse | 68, | 65, | 65, | 65, | 64 | 64, | 64, | 64, | 64 |

By this experiment we find the pulse gen-
erally excited, but more particularly so in
the right arm to which the friction was ab-
plied, in the proportion ~~was of~~ of 68 to 76, that is
8 beats more in the right than left arm.—
It may not be incurious to observe
when the friction was removed, the pulse returned
to its natural standard, much sooner in
in the left than right arm, as may be seen
by the above experiments.—

Experiment 2.

Myrrh dissolved in spirit of wine & pomed
on the hand, was applied to the same arm,
the result was as follows.—

# 4

A experiment was made with flannel impregnated with the volatile liniment & applied to the lower extremities. The result was as follows.

Great care being exercised in the examination of the pulse in both arms & also in the pulse of the anterior tibial artery.

This experiment was made at 1 o'clock in the afternoon.

My pulse beating 80 strokes in the minute

Anterior tibial artery

| | | | | | |
|---|---|---|---|---|---|
| Minutes | 2, | 5, | 10, | 15. | 20 |
| pulse | 80, | 81, | 83, | 85, | 88 |

At the wrist

| | | | | | |
|---|---|---|---|---|---|
| Minutes, | 2. | 5, | 10, | 15, | 20 |
| pulse, | 80, | 80 | 81, | 85, | 84 |

The anterior tibial artery of both legs was examined without any perceptible alteration ever being observed in their pulsation, with respect to the wrists, some small difference was observed, the pulse in the right wrist being

My pulse beating 64 in a minute

Right arm

| Minutes | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| pulse | 65 | 68 | 70 | 74 | 80 |

Left arm

| Minutes | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| pulse | 64 | 64 | 66 | 70 | 72 |

when the friction was stopped it returned to its natural standard nearly in the same order as in the former case with this difference only, the pulse in the right arm continued excited much longer.—

3d experiment, was made at 1 o'clock in the afternoon the next day, with Camphor dissolved in spirit of wine, the following was the result.—

This experiment was made on the left arm with flannel impregnated with this mixture.—

My pulse beating 68 strokes in a minute

rather more frequent, scarcely amounting to
beat in the minute.

Experiment 3rd

Friction was made on my back with the
volatile liniment, at 12 o'clock at night
My pulse beating 64 strokes in the minute
the effects produced were as follows.
The anterior tibial artery of both legs, to
gether with the radial artery of both arms
were examined

My pulse beating 64 strokes in
minute

At the wrists

| | | | | | |
|---|---|---|---|---|---|
| Minutes | 2, | 5, | 10, | 15, | 20 |
| pulse | 64, | 64, | 65, | 66, | 68 |

At the ankles

| | | | | | |
|---|---|---|---|---|---|
| Minutes | 2, | 5, | 10, | 15, | 20 |
| pulse, | 64, | 64, | 64, | 65, | 68 |

Continuing the friction for 20 minutes
there appeared to be no perceptible, difference
in the pulsation, either at the wrists or
ankles, continuing to beat 68 strokes in
minute, when we ceased to examine it.

Left arm

Minutes 1, 2, 3, 4, 5, 6
pulse 68, 70, 73, 76, 80, 88

Right arm

Minutes 1, 2, 3, 4, 5, 6
pulse 68, 68, 71, 73, 76, 80

When I ceased to examine it.

My pulse was not only increased in frequency, but in fullness & force, continuing all the afternoon & till 9 o'clock at night when I was compelled to go to bed in consequence of a violent pain in the head with throbbing of the temples. It. recurring in all probability from this cause, for I knew of no other to excite it.*

It was the opinion of the illustrious Haller that the arteries were not endowed with a contractile power; of course they could not be pulsatile in the arteries independant of the action of the heart; but this opinion is ably & satisfactorily refuted

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Say Dr Smith, he infers it, 1st from ab
pearances exhibited in several diseases, in
all local inflammations, as paronychia
for instance, there is violent action of
the arteries, totally unconnected with the
action of the heart, for the pulse will
beat one hundred strokes in a minute
in the part affected & the usual number
at the heart. 2d from the muscular fibre
es ~~of~~ & nerves of the arterial coats, no
muscular fibres being destitute of vari
ability. He goes still further & contends
for the contractility of the veins. This I
infer, says our illustrious author, 1st
from the muscular nature of their
fibres & 2d from pulsation being observed
in the vena cava near the heart. &c
Phy experiments goes to confirm this
this doctrine, proving the fact incon
trovertably. ——

Having described sections, the parts ~~to~~

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which they should be applied, their effects on the bloodvessels, nerves, muscles, bowels, skin &c. Mentioned their effects when applied generally & locally & likewise their influence on the pulse. We will now proceed to speak of them in the cure of certain diseases.

5th In all diseases of weak action

Here it should be applied either generally or locally according to the circumstances of the case or nature of the disease, with the dry hand, flesh brush or flannel simple or impregnated with certain stimulating substances as Myrrh, Camphor dissolved in Spirit of Wine or volatile liniment. &c —

From the experiments made above on the healthy constitution, we may readily suppose them to be of advantage & which

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proved to be the case by the testimony of every medical writer. I would however by no means have a Physician to depend upon this alone as a remedy, for however efficacious it may be in itself, it may frequently fail for the want of the co-operation of some other medicine. What Physician is there, that trusts to one medicine alone for the cure of a disease however powerfull or inestimable it may be? not one. To do so would argue a belief in in Specifics, which is absurd. ——

Friction seems more particularly adapted to the cure of certain disorders, as Typhus fever, Rheumaticula, Rheumatalgia &c. For the former viz. Typhus fever it should be applied generally & probably more advantage would be derived from from the flesh brush. —— For Rheumaticula

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of Rheumatalgia, it should be applied to the extremities. The dry hand or flannel impregnated with certain skin relaxing substances would be best here.

## The obstructed viscera

should be applied to the abdomen opposite to the viscus or viscera affected.

## The obstructed respiration

The application of friction should be made to the whole surface of the body & frequently repeated.

## The old age

This is characterized by rigidity of fibre, tort or impaired tones

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as seeing, hearing, touch, loss of memory, imbecility of body & mind, tremors, corrugation of skin, grayness of head, falling off of the hair &c. — Dr Paris in his excellent lectures on animal life; shows the effects of certain stimuli acting on sensibility & excitability which is extended in different degrees both external & internal, over the whole body: now as there is great attachment of the natural stimuli in old age, life must necessarily languish, this may be in part remedied or at least old age may be rendered comfortable, by substituting artificial stimuli; there is more probably so proper for this purpose as

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friction. To obtain the greatest advantage from this, it should be applied over the whole body & daily repeated. The Chinese custom of shampooing which is nothing more than a modification of friction, was recommended by them of the greatest importance in old age, renovating & reanimating as it were the old, producing a return of youthful vigour & activity. This being a fact that may not be lost from friction properly applied & continued an sufficient length of time.

The coldness of the extremities

friction has been a remedy in this from time immemorial or at least

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from the earliest records of Physic.
We want no better proof of its efficacy
here, than its continued use, at this
enlightened period of medical science.

## The Head-ache

Friction bids fair to be an excellent
remedy here, from some facts men-
tioned by Dr Rush in his lectures
where the most lenitive pain
yielded, to pleasurable sensations. This
we know can be excited to the most
exquisite degree by friction. The
extremities are the parts to which
it should be applied in this defect-
ive more particularly to the palms
of the hand, & soles of the feet. —

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## The time for using Friction

This is of great importance to be known: for its failure in the cure of disease, is frequently, I have no doubt to be attributed to this cause. To the experienced Physician, who has made the laws & functions of the animal Oeconomy his study, the following observations would be unnecessary; but how few are they who either observe correctly, reason properly or judge rightly of the nature of disease: such without a guide, would be dangerous men to deal with, & I have no doubt (in the language of Sydenham) they would slay their thousands. The time of using it appears to me to be most proper in the morning, for this reason

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the system — is in a more excitable state at that time & of course the effect produced will be much greater, not having any of its excitability exhausted by the numerous stimuli that act on the body during the day —

## The manner of using friction

It should be gentle at first & increased gradually in force, till the desired effect is produced. &c —

## The length of time for applying it —

should be according to circumstances and generally from half an hour to an hour will be found to answer best. —